Materials

VLASOV, L. G., KRASIL'NIKOV, B. G., LUK'YANOV, V. B., MOLOTOVA, A. Yu.

"An Investigation of Stability in Production of Ceramic Bases for Type SPO Resistors by the Method of Mathematical Statistics"

Translation: Information is given on the use of mathematical statistics for studying conditions of making ceramic bases for SPO resistors. A description is given of the scheme for planning the experiment in the initial stages of the investigation using the methods of a priori ranging of factors and random balance. Bibliography of nine titles. Ye. M.

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USSR

UDC 621.791.052:620.17:539.214:
669.14.018.295

LUK'YANOV, V. F., Candidate of Technical Sciences, LYUDMIRSKIY, Yu. G.,
Engineer (Rostov Institute for Agricultural Machinery) and DZHULAY, L. L.,
Engineer (Kursk Polytechnic Institute)

"Strength and Ductility of Welded Joints in High-Strength Steel"

Abstract: This work presents a study of the influence of carbon in medium-
alloy, high-strength steel on the strength and ductility of welded joints
and develops methods for improving these characteristics. Studies were
performed using experimental melts of type KVK steel, differing primarily
in carbon content. The welding mode was: current 40-46 a, voltage 7.5-8 v,
argon flow rate 6-7 l/min, welding speed 9 m/hr. After welding, the speci-
mens were high tempered at 650°C for 1 hour, then hardened at 940°C, 30 min-
utes cooled in air and low tempered at 220°C, 2 hours. The optimal carbon
content in the steel studied for welding of pressure vessels was found to
be 0.39-0.42%, since further increases in carbon content caused a reduction
in the structural strength of the welded joint. With carbon contents of
0.39-0.42%, homogenization of metals in slabs before rolling allows signifi-

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UDC 621.791.052:620.17:539.214:
669.14.018.295

LUK'YANOV, V. F., LYUDMIRSKIY, Yu. G., DZHULAY, L. L., Moscow, Svarochnoye
Proizvodstvo, No 4, Apr 72, pp 33-35.

cant increases in joint ductility, which may equal that of the base metal,
without significantly changing strength. The use of isothermal annealing
after welding for structures of steel containing 0.4-0.43% carbon helps to
increase their strength by more than 10-15%, ductility by more than 50%.

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USSR

UDC 621.791.052:621.787:620.169.1:
669.295:620.178.311.868

LUK'YANOV, V. F., OLIFER, V. V., LYUDMIRSKIY, Yu. G., KHESIN, Yu. D.,
BODUNOVA, M. B., Rostov-na-Donu Institute of Agricultural Machine Building

"Influence of Surface Hardening on Low-Cycle Durability of Type B120VCA
Titanium Alloy in a Corrosive Medium"

Abstract: A method of testing welded joints in biaxial bending is developed,
allowing the influence of a corrosive medium on low-cycle fatigue of joints
to be determined. Tests are performed in a 3% solution of NaCl under load-
ing conditions characteristic for sheet structures. In the test installa-
tion developed, the specimen is suspended over a cavity and deformed by the
pressure of air pumped into the sealed cavity, with the top of the specimen
covered by the salt solution. The tests indicate that plastic deformation
of a welded joint by rolling of the joint between narrow rolls can signi-
ficantly increase durability under these conditions.

1/1

042

TITLE--EFFECT OF OXIDES ON THE STRENGTH OF WELDED COMBINATIONS OF AMG6
ALLOY PRESSURE VESSELS -U-

UNCLASSIFIED

PROCESSING DATE--11DEC70

AUTHOR-(04)-LUKYANOV, V.F., MOISEYENKO, V.P., FOMIN, V.N., MOISEYENKO,
I.G.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, SVAROCHNOYE PROIZVODSTVO, NO. 6, 1970, P 24

DATE PUBLISHED------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS

TOPIC TAGS--ALLOY WELDING, WELD DEFECT, ALUMINUM OXIDE, PRESSURE VESSEL,
OXIDE FILM/(U)AMG6 ALLOY, (U)UOR7 WELD TEST EQUIPMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605041/008 STEP NO--UR/0135/70/000/006/0024/0024

CIRC ACCESSION NO--AP0142718

UNCLASSIFIED

2/2   042

UNCLASSIFIED

CIRC ACCESSION NO--AP0142716

PROCESSING DATE--11DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE HIGH AFFINITY OF ALUMINUM TO OXYGEN AND LOCAL CONCENTRATED HEATING BEFORE THE WELDING BATH RESULT IN FAVORABLE CONDITIONS FOR THE FORMATION OF OXIDE FILMS ON THE SURFACES TO BE WELDED. THESE FILMS ADVERSELY AFFECT THE STRENGTH OF THE WELD BUT THEIR EFFECT VARIES WITH A NUMBER OF FACTORS. THE PURPOSE OF THE AUTHORS IS TO DETERMINE THE EFFECT OF THE OXIDES ON THE WELD UNDER STATIC LOAD AND UNDER CONDITIONS OF BIAXIAL EXPANSION. TESTS WERE CONDUCTED ON THREE GROUPS OF SPECIMENS OF AMG6 ALLOY 3 MM THICK BY THE METHOD OF HYDROSTATIC BUCKLING IN A UDR 7 MACHINE. THE STRENGTH OF THE WELD WAS ESTIMATED FROM THE AMOUNT REAL TENSION ON THE METAL UNTIL THE WELD JOINT GIVES WAY. THE AUTHORS CONCLUDE THAT, IN WELDED COMBINATIONS OF VESSELS UNDER PRESSURE, THERE IS NO NEED FOR STRICT LIMITATIONS ON THE LENGTH OF THE SEAM SECTION WITH THE OXIDE, BUT THE DEPTH OF THE DEFECT SHOULD NOT EXCEED 15-20PERCENT OF THE METAL SEAM THICKNESS. FACILITY: RISKHM, ROSTOV-ON-DON.   FACILITY: GKSKB ENERGOMASHA, ROSTOV-ON-DON.

UNCLASSIFIED

Coatings

USSR

LUK'YANOV, V. M., ZEMSKOV, G. V., KOGAN, R. L., and VIDERMAN, V. S.

"Oxidation of Diffusion Coatings on a Niobium Alloy"

Kiev, Metallofizika, No 32, 1970, pp 127-130

Translation: This study presents the results of electron, X-ray diffraction, and microstructural analysis of multicomponent coatings on the VN-2A niobium alloy after their oxidation at the temperature $700-1200°C$ for $0.5-100$ hours. The sequence of the formation of oxides on the surface of the $(Cr + Ti) - Si$ coating was studied. Niobium oxide NbO appears at the first stage, followed by the oxides TiO_2, SiO_2, and Cr_2O_3. Further oxidation results in an increased concentration of Cr_2O_3 in the oxide film. In case of a prolonged oxidation of a coating at $1100°C$ for 100 hours the oxide film contains SiO_2 with an inclusion of oxides with a structure and parameters of TiO_2.

Bibliography: 5 entries. Illustrations: 2. Tables: 1.

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USSR

UDC 613.644:613.68

YERENKOVA, S. M., and LUK'YANOV, V. N., Murmanskaya Oblast Station of Labor Hygiene and Occupational Diseases.

"Hygienic Assessment of Noise and Vibration on Fishing Vessels of the Trawler Fleet"

Moscow, Gigiyena i Sanitariya, No 1, Jan 71, pp 32-34

Abstract: A study was conducted of the levels of noise and vibration on fishing vessels of types BMRT-254 (German construction) and BMRT-401 (Polish construction) of the Murmansk trawler fleet. These are factory trawlers on which fish is processed. They are equipped with machines for this purpose, radio navigation devices, etc. Fishing and processing of fish are similar on both types of BMRT trawlers, but the inner arrangement is somewhat different. The levels of noise and vibration, particularly during forced runs and lowering and collection of the trawl net, were too high on both types of vessel, but the BMRT-401 was more satisfactory than the BMRT-254 in this respect. The noise was excessive in production sections, service rooms, and living quarters. The reasons were absence of sound insulation, incorrect and imprecise balancing of rotating engine parts, and absence of sufficiently firm connections between individual construction elements. The design of BMRT vessels should be modified to reduce vibration and noise.
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USSR

LUK'YANOV, V. P.

UDC 669.71:621.035.008

"DC Current Supply to Graphitizing Furnaces From Silicon Rectifiers"

Sb. Materialov Vses. seminara energetikov predpriyatiy tsvetn. metallurgii po ekon. elektroenergii (All-Union Seminar of Electrical Engineers of the Enterprises of Non-ferrous Metallurgy on the Question of Economizing on Electrical Power -- collection of transactions), Moscow, 1970, pp 87-93 (from RZh-Metallurgiya, No 11, Nov 70, Abstract No 11 G93)

Translation: At the Dneprovsk Electrode Plant the DC current supply to graphitizing furnaces was replaced by DC current supply through high-ampere Si-rectifier units (their detailed technical specifications are presented). As a result, it was possible to increase the maximum power to the furnace from 4 to 8 thousand kw, the furnace output from 575 to 1,000 kg/hr, and cos φ from 0.86 to 0.9. One shortcoming of the DC current supply circuit to the furnace is its bulkiness (768 fuses and 96 RPNV-type relays). An Si-unit with VAKN 2500/150-type water cooling for the external installation at the plant is being designed. The

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USSR

LUK'YANOV, V. P., Sb. materialov Vses. seminara energetikov predpriyatiy tsvetn. metallurgii po ekon. elektroenergii, Moscow, 1970, pp 87-93 (from RZh-Metallurgiya, No 11, Nov 70, Abstract No 11 G93)

current in the short circuit will be 75 ka, a fact which will make it possible to reduce the time of one run of the furnace that curr...ly lasts 40-42 hrs.

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LUK'YANOV V.S.

JPRS 57357
27 Oct 72

INCREASED ROLE OF THE PSYCHOLOGICAL FACTOR UNDER CONDITIONS OF SCIENTIFIC
AND TECHNOLOGICAL PROGRESS

UDC: 613.865:008

[Article by Professor V.S. Luk'yanov, Moscow; Sovetskoye Zdravo-
okhraneniye, Russian, No 4, 1972, submitted 11 April 1972, pp 41-46]

Man's work has and remains the decisive factor in increasing the
effectiveness of production. This was again stressed in the report of the
Central Committee of the CPSU to the 24th Congress of the CPSU, delivered
by L.I. Brezhnev. Substantiating the need to achieve further improvement
in the people's standard of living, L.I. Brezhnev stated: "Modern industry
makes rapidly growing demands not only of machinery and technology, but
also and first of all of the workers, those who create this machinery and
control this technology. Special knowledge, high occupational training, and
man's general standards are changing into the mandatory prerequisite
for successful work by ever increasing groups of workers. But all this
depends largely on the standard of living, on how fully the material
and spiritual demands can be met."

Modern industry is characterized by intellectualization of labor;
memory and attention, will are moving to the fore, and the role of emotions
is increasing. Physical exertions are reduced to a minimum. Foreign
statistics indicate that 99 percent of the useful physical work done on
our planet at the present time is performed by man-controlled machinery
and only one percent by human muscular exertion.

Some new and highly responsible occupation have appeared: operators,
adjusters, dispatchers. Their work is characterized by strained attention
and requires enormous mobility of nervous processes. For example, an
airport dispatcher shifts from one form of activity to another an average
of 1,500 times in an 8-hour work day; a railroad dispatcher working at
a control console makes such shifts 1,377 times in 12 hours. If they should
make a mistake there could be accidents and human victims.

*L.I. Brezhnev, "Report of the Central Committee of the CPSU to the 24th
Congress of the Communist Party of the Soviet Union," in Materialy XXIV
s"yezda KPSS (Proceedings of the 24th Congress of the CPSU), Gospolitizdat
Publishing House, 1971, pp 41-42.

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LUK'YANOV V.V.
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SUBSCRIBER'S TELEGRAPH EQUIPMENT

[Article by V. V. Luk'yanov, B. V. Korop, I. I. Kasyalavskiy, and Ye. M. Grozov; "Subscriber's Telegraph Equipment of the AGAT type"; Moscow, Vestnik Svyazi, Russian, No 8, August 1972, pp 27-30]

In order to organize the transmission of data via a switched telegraph network it is necessary to include a large number of terminal installations for the relay of data to the switching telegraph stations. Since most of such installations will be located in cities, city telephone exchange cable lines will be used to connect them. The complex of subscriber's telegraph equipment of the AGAT type worked out at KONIIS [Kiev Division of the Central Scientific Research Communications Institute] of the USSR Ministry of Communications, will make it possible to utilize practically any number of circuits in city telephone exchange cables for the transmission of data at a speed of up to 200 baud.

New Equipment Developed in the Five-Year Plan

At the present time the transmission of telegraph signals via city subscriber's lines is carried out with the aid of sub-scriber's panels or electronic transition devices of the EPU and UPU-11 type installed in exchange switchboards. Inasmuch as direct current signals are transmitted from these devices directly to the electromagnet of the telegraph apparatus, sources of high linear voltage of ±60 volts are used in them with a grounded central point.

Utilization of voltage sources with a grounded central point leads to a decrease in transitional attenuation between the telegraph circuit and other circuits in the cable by 13-17 decibels. As a result of the combination of two factors: high linear voltage and a decrease in transitional attenuation telegraph communication exerts a substantive

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USSR

UDC 669.15'24-194:620.17

BERESNEV, G. A., KOZEL'SKIY, A. V., LUK'YANOV, V. V., MALAFEYEV, A. S. and PERKAS, M. D.

"High-Strength Carbon-Nickel Steel"

Moscow, Metallovedeniye, No 9, Sep 72, pp 64-66

Abstract: The mechanical properties of C-Ni steels with 10-14% Ni were invest-
igated. The chemical compositions of the steels are as follows:

	C	Ni	Mo	W	V	Co	Si	Mn	S+P
UN-10	0.32	10	----	----	----	----	0.15	0.20	0.012
UN-12	0.32	12	----	----	----	----	0.12	0.21	0.010
UN-14	0.33	14	----	----	----	----	0.17	0.21	0.011
UNS	0.40	14	0.35	0.55	0.4	----	0.10	0.80	0.040
UNS-20	0.17	14	0.38	0.60	0.4	----	0.11	0.05	0.020
UNS-20K	0.17	13	0.22	0.43	0.15	5.5	0.10	0.06	0.020
UNS-50K	0.54	10	0.68	----	0.3	4.3	0.10	not determined	

Ingots weighing 30 kg were vacuum-induction melted and rolled into strip 5 mm
thick, which was subjected to normalization at 950°C and high-temperature temp-
ering at 500°C. In the hardened state, the UN and UNS steels have high strength
and ductility. The highest strength of UN steels can be achieved by quenching
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USSR

BERESNEV, G. A., et al., Metallovedeniye, No 9, Sep 72, pp 64-66

from 675°C. Also, the impact strength is lower than after quenching from 750°C. High-nickel steels with a tensile strength of 190-223 kgf/mm^2 had an impact strength of 5-8.5 kgf-m/cm^2. UNS-50K steel had the highest strength but less elongation and reduction in area. Alloying C-Ni steels with Mo, W, and V (0.2-0.5%) significantly increases their resistance to tempering, while alloying with cobalt causes additional strengthening with $\Delta\sigma \approx 20$ kgf/mm^2 at 5.5% Co, identical in magnitude in the hardened and tempered state. The increased strength as a result of increased carbon content is high only in the hardened state or after low-temperature tempering. The change of ductility properties with increased strength shows that UNS and UNS-50K C-Ni steels have an elonga-tion of 7-15% and reduction in area of 30% for a strength of 200 kgf/mm^2. For UNS-50K steel adequate ductility is provided by low-temperature tempering, while very high strength (265-280 kgf/mm^2) is preserved. All investigated steels had a fine granular structure, which contributes significantly to their high mechanical properties. 2 figures, 2 tables.

2/2

2

USSR

UDC 629.7.036.54(536.246+536.9)001.2

ALEMASOV, V. YE., KLABUKOV, V. YA., SAGADEYEV, V. I., LUK'YANOV, YU. G., SHIGAPOV, A. B., and KUZ'MIN, V. A.

"Indicatrix of Oxide Particle Dissipation in Products of Combustion"

Kazan', Tr. Kazan. Aviats. In-ta (Works of Kazan' Aviation Institute), No 133, 1971, pp 20-29 (from Referativnyy Zhurnal-Aviatsionnyye i Raketnyye Dvigateli, No 2, Feb 72, Abstract No 2.34.118)

Translation: When studying the thermal radiation energy in combustion products containing solid and liquid particles of condensed aluminum, magnesium and other oxides we must know the angular distribution of dissipation radiation (dissipation indicatrix) as well as the absorption and dissipation coefficients. Presently available data on dissipation indicatrix apply basically to atmospheric physics problems. The article presents the algorithm developed by the authors for calculating the dissipation indicatrix by means of M-20, M-220 and BESM-4 computers. Indicatrix calculations with BESM-4 computers for wide range of temperatures and particle sizes of the products of combustion are also presented. 10 illustrations, 16 references.

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-USSR ·

UDC 911.3.616.981.455(574)

KONDRASHKIN, G. A., PUGACHEV, Yu. A., KONDRASHKINA, K. I., KALYAZINA, I. M.
PROSHIN, V. G., LUK'YANOVA, A. D., KORCHEVSKAYA, V. A., KORCHEVSKIY, P. G.,
and POLYAKOV, V. K.

"Landscape-Epidemiological Regional Division Into Tularemia Districts in the Trans-Ural Area of Western Kazakhstan"

Translation: The Trans-Ural area of Western Kazakhstan consists of four land-scape-epidemiological areas: the Barbastau-Ileko-Utvinskiy area (steppe), the Chelkaro-Ankatinskiy area (dry steppe), the Chiderty-Ulenty-Buldurtinskiy area (semi-desert), and the Kaldygayty-Uil'skiy area (semi-desert-desert). Each area is described. Characteristic for the steppe and dry steppe areas is the steppe type of tularemia focus; while the estuary semi-desert type of tularemia focus is typical for the semi-desert. The prolonged epizootic "calm" of tularemia foci in the Trans-Ural area is due to the progressive drying out of once extensive local river delta floods. Because of cattle slaughter, xerophyt plants take over with river land turning to desert.
1/2

SSR

KONDRASHKIN, G. A., et al., Probl. osobo opasn. infektsiy (Problems of Especially Dangerous Infections -- collection of works) Vyp. 5 (15), Saratov, 1970, pp 91-105 (from RZh-Meditsinskaya Geografiya, No 4, Apr 71, Abstract No 4.36.96)

The projected irrigation of the Trans-Ural area by construction of the Volga-Ural canal may activate local native tularemia foci. Numerical tables are provided for small mammals and their ectoparasites in the areas defined.

2/2

USSR   UDC: 620.197.3

ANOSHCHENKO, I. P., ZORCHENKO, A. P., and LUK'YANOVA, G. I., Novocherkassk
Polytechnic Institute

"Effect of Antimony Trichloride on the Corrosion Behavior of Titanium in
Sulfuric and Hydrochloric Acids"

Abstract: Earlier research shows that the dissolution rate of titanium in
2 n. solution of HCl sharply decreases in the presence of triply charged Sb
cations. This study involves their effect on the behavior of VTI-0 titanium
in chemically pure 5 n. sulfuric and hydrochloric acids. Parallel tests (by
gravimetry) were conducted on 3 specimens for each acid at 80°C. The dura-
tion of the experiment was 3 hours. Polarization measurements were made in
open air in a cell with separated electrode spaces. A table in the original
article shows that with a deficient content of $SbCl_3$, the dissolution rate
increases, apparently due to the cathodic reaction $Sb^{3+}+3e \rightarrow Sb$, $E_0=+0.20v$
or $SbO^{+}+2H^{+}+3e \rightarrow Sb+H_2O$; $E_0=+0.212$ v. Passivation sets in above the "critical"

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USSR

ANOSHCHENKO, I. P., et al, Zashchita Metallov, Vol. 6, no. 4, Jul-Aug 70, pp 443-444

concentration and the corrosion rate sharply drops. With cathodic polarization, metallic antimony separates and appears on the surface of titanium. In the presence of $SbCl_3$ the anodic polarization curve lies completely within the passive state region. The corrosion resistance of VTI titanium, which equals zero in sulfuric and hydrochloric acid solutions at various temperatures, rises sharply in the presence of sufficient amounts of triply positively charged Sb cations, while the below-critical concentration the corrosion rate increases.

2/2

- 20 -

USSR

UDC 66.095.26:678.86

KOLESNIKOV, G. S. (DECEASED), ZAFARALIYEVA, I. G., RODIONOVA, YE. F., and LUK'YANOVA, G. M., Institute of Organo Elemental Compounds, Moscow, Academy of Sciences USSR

"Kinetics of Polymerization of Vinylphosphonic Esters"

Abstract: A kinetic study was made of the block polymerization of a series of vinylphosphonic esters in the presence of azobisisobutyronitrile to ascertain the influence of the value and structure of the alkyl radical on the course of the polymerization process. Vinylphosphonic esters were synthesized and their properties determined, and the specific weights of the monomers and polymers of the vinylphosphonic esters were determined. The polymerization of dimethyl and diisopropyl vinylphosphonate with various initiator concentrations was staged for purposes of ascertaining the role of chain transfer through the monomer in chain termination. It was found that in the early

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USSR

KOLESNIKOV, G. S. (DECEASED) et al., Vysokomolekulyarnyye Soyedineniya,
Vol 12, No 5, May 70, pp 1051-1061

stage of polymerization chain transfer through the alkyl groups of
the monomer is the principal process resulting in the termination of
macromolecule growth. In the later polymerization stages there is
chain transfer through the alkyl groups of the resultant polymers.

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TITLE--TRUE SPECIFIC HEAT AT LOW TEMPERATURES, ABSOLUTE ENTROPY, AND
    ENTHALPY OF CESIUM CARBONATE -U-

AUTHOR--PAUKOV, I.YE., RAKHMENKULOV, F.S., LUKYANOVA, I.G.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(1), 256-7

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ENTROPY, ENTHALPY, CESIUM COMPOUND, CARBONATE, CALORIMETER,
    SPECIFIC HEAT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1983/0944   STEP NO--UR/0076/70/044/001/0256/0257

CIRC ACCESSION NO--AP0053868
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0053868
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SP. HEAT OF CS SUB2 CO SUB3
  WAS MEASURED IN AN ADIABATIC VACUUM CALORIMETER AT 13-307DEGREESK.   AT
  20-95DEGREESK, THE SAMPLE COOLING RATE HAS A GREAT INFLUENCE ON THE
  VALUE OF ITS SP. HEAT.

TITLE--REMOVAL OF UNPOLYMERIZED MONOMERS FROM LATEXES -U-

AUTHOR-(05)-KIL, T.A., ZADORSKIY, V.M., LUKYANOVA, I.P., VOLKOVA, N.I.,
KENZHETAYEVA, V.D.
COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 265,431
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--09MAR70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--MONOMER, LATEX, CHEMICAL PATENT, BUTADIENE, INDUSTRIAL
BYPRODUCT, UNSATURATED HYDROCARBON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1425   STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0128824
                         UNCLASSIFIED

CIRC ACCESSION NO--AA0128824
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. UNPOLYMD. MONOMERS ARE REMOVED
   FROM LATEXES BY DISTG. THEM WITH STEAM MIXED WITH THE ETHER PART OF A
   PIPERYLENE FRACTION (BY PRODUCT OF 1,3,BUTADIENE PRODUCTION AS DESCRIBED
   BY S. V. LEBEDEV).

UNCLASSIFIED

CIRC ACCESSION NO--AA0129823

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. UNPOLYMD. MONOMERS ARE REMOVED
FROM LATEXES BY DISTG. THEM WITH H SUB2 O VAPOR MIXED WITH FREON 12.

UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--04DEC70

1/2   010
TITLE--REMOVAL OF UNPOLYMERIZED NONOMERS FROM LATEXES -U-

AUTHOR-(05)-KIL, T.A., ZADORSKIY, V.M., LUKYANOVA, I.P., SHVETSOV, N.V.,
VOLKOVA, N.I.
COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 262,382
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--26JAN70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--MONOMER, LATEX, CHEMICAL PATENT, DISTILLATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/0836   STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0136270
UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--04DEC70
CIRC ACCESSIUN NO--AA0136270
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT.   UNPOLYMD. MONOMERS ARE REMOVED
  FROM LATEXES BY DISTG. THEM WITH STEAM MIXED WITH N.

1/2   014   UNCLASSIFIED   PROCESSING DATE--04DEC70
TITLE--INCOMPLETE ANTIBODIES IN TOXOPLASMOSIS OF ANIMALS -U-

AUTHOR-(02)-LUKYANOVA, K.P., GOLOSOV, V.I.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970, NR 6,
PP 58-61
DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--TOXOPLASMOSIS, ANTIBODY, COMPLEMENT FIXATION TEST

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0413   STEP NO--UR/0016/70/000/006/0058/0061

CIRC ACCESSION NO--AP0126166
                              UNCLASSIFIED

CIRC ACCESSION NO--AP0126166
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INCOMPLETE ANTIBODIES WERE
REVEALED IN ANIMALS INFECTED WITH TOXOPLASMOSIS (SPONTANEOUSLY AND
EXPERIMENTALLY); REACTION OF DEPRESSION OF COMPLEMENT FIXATION WAS USED
FOR THIS PURPOSE. IT WAS SHOWN THAT INCOMPLETE ANTIBODIES COULD BE
REVEALED IN 4 TO 15 DAYS AFTER THE INFECTION; AS TO COMPLEMENT FIXATING
ANTIBODIES, THEY COULD BE FOUND ONLY 6 TO 30 DAYS LATER. WITH
SUBSIDENCE OF THE PROCESS THE COMPLEMENT FIXATING ANTIBODIES DISAPPEAR
FROM THE BLOOD OF SICK ANIMALS, AND AGAIN, FOR SOME TIME, INCOMPLETE
ANTIBOIDES REAPPEAR. THE RESULTS OBTAINED ARE DISCUSSED FROM THE POINT
OF VIEW OF DIAGNOSTIC SIGNIFICANCE OF DETECTION OF INCOMPLETE
ANTIBODIES.   FACILITY: KAZAKHSKIY NAUCHNO-ISSLEDOVATEL'SKIY
INSTITUT OKHRANY MATERINSTVA I DETSTVA I INSTITUT ZOOLOGII AN KAZAKHSKOY
SSR.

UNCLASSIFIED

1/2   018   UNCLASSIFIED   PROCESSING DATE--16OCT70
TITLE--SEARCH FOR MEDIA USEFUL AS SOLVENTS FOR GROWING Y SUB3 FE SUB5 O
  SUB12 CRYSTALS FROM SOLUTION MELTS -U-
AUTHOR-(02)-TIMOFEYEVA, Y.A., LUKYANOVA, N.I.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(3), 587-9

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--BORATE, CRYSTAL GROWING, VANADATE, ALKALI METAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/0833   STEP NO--UR/0363/70/006/003/0587/0589

CIRC ACCESSION NO--AP0118009
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0118009

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COMPOS. BASED ON VANADATES,
NIOBATES, BORATES, AND FERRATES OF THE ALKALI METALS WERE TESTED. THE
GREATEST EFFECT IS EXPERIENCED AT HIGH TEMPS., WHEN THE SOLY. OF SUCH
OXIDES AS $Y_2 O_3$ STRONGLY INCREASES WITH INCREASED TEMP. A NEW
METHOD OF SPONTANEOUS CRYSTN. WAS TESTED FOR CHECKING THE NEW COMPNS.,
WITH THE HEATING BEING PERFORMED TO 1450-1500DEGREES AND THE COOLING
PROCEEDING AT A RATE OF 1-3DEGREES-HR. ALL THE TESTED SOLVENTS WERE
NONVOLATILE. IN MOST OF THE CASES ADDNL. CRYST. PHASES PPT. OUT
SIMULTANEOUSLY WITH Y_3NEGATIVE $FE_5 O_{12}$. WHEN WORKING WITH
SOLVENTS BASED ON THE VANADATES OF THE ALKALI METALS, THE FOLLOWING
ADDNL. PHASES PPT. OUT: $FE_2 O_3$, $RFE_5 O_8$, AND YVO_4.
FROM SOLNS. BASED ON THE NIOBATES, (WITH THE EXCEPTION OF $LINBO_3$),
THE FOLLOWING ADDNL. PHASES PPT. OUT: $RFE_5 O_8$, $YNBO_4$, $RNBO_3$,
AND $YFEO_3$. THE BEST RESULT IN THIS GROUP OF COMPOS. WAS SHOWN
BY EXPTS. WITH $NANBO_3$, WHEN AT 33.3PERCENT ONLY THE PHASE $Y_3 FE_5 O_{12}$ PPTD. OUT. DURING THE CRYSTN. FROM BORATES AND FERRATES OF
THE ALKALI METALS, THE GARNET PHASE PPTD. OUT IN ALMOST ALL CASES, AND
ONLY RARELY $YFEO_3$ AND $FE_2 O_3$. MAX. SIZE OF THE $Y_3 FE_5 O_{12}$ CRYSTALS (2-3 MM) WAS ATTAINED AT A CONCN. OF 40PERCENT FOR
$NA_2 B_4 O_7$, AND 80PERCENT FOR $K_2 B_4 O_7$.
FACILITY: INST. KRISTALLOGR., MOSCOW, USSR.

USSR

LUK'YANOVA, P. G., FADEYEV, S. I., and SHVEDOVA, K. V.

"Computing the Statistical Parameters of Mechanical Models of Pelli-cular Electrostatic Relays"

Translation: The problem

$$\alpha^2 y^{(IV)} = y'' + \varphi(x)(1 - y)^{-2},$$

$$y(0) = y(1) = y'(0) = y'(1) = 0,$$

where α is a constant and $\varphi(x)$ is a piecewise constant function, is studied. This problem arises in the study of pellicular electrostatic relays. It is shown that the relay parameters can be found if two resonance frequencies are known. A. Lepin

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USSR

KRASS, I. A., LUK'YANOVA, V. A.

"Investigation of a Leont'yev Model With Delay"

Translation: The first part of the article is concerned with the non-linear extremum problem of finding the maximum non-negative eigenvalue in the generalized eigenvalue problem. The conditions of existence of the solution and an iterative algorithm for finding it are determined for this problem. The second part of the paper deals with a model of the Leont'yev type where each product requires manufacturing funds which must go through several preliminary preparation stages (the number of stages depends on the type of good). It is shown that finding the rate of growth of the described model reduces to a problem formulated in the first part of the paper; the influence which delay in building funds has on the rate of growth of the model is explained.

1/1

USSR

KRASS, I. A. and LUK'YANOVA, V. A.

"Investigating Leont'yev Models With Delay"

Translation: In the first part of this paper the authors pose the nonlinear extremal problem of finding the maximum nonnegative eigenvalue in a generalized problem of eigenvalues. For this problem, the conditions for the existance of a solution and an iterative algorithm seeking it are found. The second part of the paper examines a model of the Leont'yev type, in which each product requires for its preparation funds which must go through several preliminary stages of preparation (the number of stages is a function of the type of product). It is shown that finding the rate of increase of the model reduces to the problem posed in the first part of the paper; the effect of the delay in the development of the funds on the rate of increase of the model is explained. Authors' abstract.

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USSR

UDC 541.1.13

GORODETSKIY, A. Ye., TESNER, P. A., LUK'YANOVICH, V. M., POLYAKOVA, M. M.,
ZAKHAROV, A. P., and YAGMIN, A. G., Institute of Physical Chemistry, Acad.
Sc. USSR, All Union Scientific Research Institute of Natural Gasses, Moscow

"The Structure of Thin Pyrocarbon Films Obtained From Methane"

Abstract: Structure of pyrocarbon films obtained from methane under known
growth kinetics has been studied. Platinum and polished quartz were used as
bases, yielding two types of films. Films on quartz consist of relatively
homogeneous finely crystalline pyrocarbon with low degree of tridimensional
ordering. The films on platinum are heterogeneous with two distinct structures:
finely crystalline and crystalline. The first resembles the films on the
graphite - the second is a well ordered tridimensional graphite. The struc-
ture of the film depends on the pressure of methane: lowering the pressure
favors formation of graphite crystals. The observed difference in the type
of film, depending on the base, is due to the competition between the seeding
and propagation processes: on quartz they are about equal, on platinum the
seeding rate changes from sample to sample and is a function of pressure. It
is proposed that pyrocarbon film formation is due to a direct decomposition of
methane molecules on the surface of the base.
1/1

- END -

USSR   UDC 541.6:541.12

YANOVA, L. P., BLYSKOSH, G. S., CHIGISHOVA, A. M., TAUBMAN, A. B., CHALYKH,
A. Ye., and LUK'YANOVICH. V. M., Institute of Physical Chemistry, USSR Academy
of Sciences, Moscow

"Mechanical and Chemical Grafting of Polymers on the Surface of Ionic Crystals"

Abstract: It was previously established by several of the authors that grafting
of polymers on a crystal surface is not uniformly distributed, but appears at
localized centers. The present study was undertaken to determine the character
of this localization.

Vacuum-dried (3 hrs., elevated temperature) rock salt and calcite crystals
were submerged in a monomer, then split, to secure a fresh surface. Intensity
of electron emission was measured.

Electron microscope photographs confirmed the localization of polymer grafting;
length of stay in the monomer had no effect on the progress of grafting. It is
concluded that successful grafting is dependent not on the bond strength of the
ionic crystal, but rather on the formation of radicals and on the ionization of
defects and the rise of free electron emission, appearing at the time of splitting.
1/1

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1/2   031   UNCLASSIFIED   PROCESSING DATE--18SEP70
TITLE--CONTROLLED GROWTH OF GRAPHITE FROM A CARBON SOLUTION IN MOLTEN IRON
-U-
AUTHOR-(03)-GORODETSKIY, A.YE., LUKYANOVICH, V.M., FEDOSEYEV, D.V.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(1), 3-5

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--GRAPHITE, FERROUS LIQUID METAL, CRYSTALLIZATION, IRON
CARBONAL, CARBON, VACUUM TECHNIQUE/(U)VUPI VACUUM FACILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1984/0150   STEP NO--UR/0363/70/006/001/0003/0005

CIRC ACCESSION NO--AP0054949
                              UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054949

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FEASIBILITY IS SHOWN OF CONTROLLED GROWTH OF GRAPHITE FROM C SOLN. IN MOLTEN FE. THE APP. FOR THE GROWING OF GRAPHITE FROM THE SOLN. WAS SELECTED ON THE BASIS OF THE VACUUM FACILITY VUP-1. ARMCO AND CARBONYL FE WERE USED AS THE MATERIAL OF THE MOLTEN ZONE. PRIOR TO THE EXPTS. THEY WERE ETCHED AND RINSED IN STEAM AND IN WATER, AS WELL AS IN ME SUB2 CO AND ALC., WHEREUPON THEY WERE ANNEALED, FE AT 1000-1100DEGREES, AND GRAPHITE AT 1500DEGREES. THE GRAPHITE OBTAINED IN THIS WAY IS COMPARABLE TO THE NATURAL GRAPHITE OF THE TAIGIN DEPOSITS RELATIVE TO ITS CRYST. PERFECTION. THIS HIGH DEGREE OF CRYST. PERFECTION OF THE GRAPHITE OBTAINED BY THIS METHOD IS PROBABLY ASSOCD. WITH THE LOW VALUE OF THE INTERPHASE FREE ENERGY AT THE FE,GRAPHITE INTERFACE, AND ALSO BY THE HIGH MOBILITY OF THE C ATOMS AT THE INTERPHASE BOUNDARY.

UNCLASSIFIED

USSR   UDC 661.666.2

GORODETSKIY, A. YE., LUK"YANOVICH, V. M., and FEDOSEYEV, D. V.

"Controlled Growth of Graphite From a Carbon Solution in Liquid Iron"

Moscow, Neorganicheskiye Materialy, Vol 6, No 1, Jan 70, pp 3-5

Abstract: An investigation was made of the possibility of controlled growth of
graphite on a graphite substrate from eutectic or hypereutectic solutions of
carbon in liquid iron. The phase diagram of the iron-carbon system has been
studied previously. When the eutectic melt hardens, a stable iron-graphite
eutectic (slow cooling) or a metastable iron-semenite eutectic (fast cooling)
can be formed. For the controlled growth of graphite from the solution, the
method of melting with a temperature gradient used earlier to obtain semiconductor
crystals, was used. In contrast to the ordinary method, in which the length of
the fusion zone varies from several microns to tens of microns, in the investi-
gated experiments the length of the fusion zone was increased to 2-4 mm. In-
creasing the length of the zone results in the process of convective mixing of
the melt being superposed on the process of diffusion of the carbon atoms from
the "hot" source to the "cold" substrate.

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USSR

GORODETSKIY, A. YE., et al, Neorganicheskiye Materialy, Vol 6, No 1, Jan 70, pp 3-5

In addition to growting large graphite formations, the authors also tried to obtain thin oriented layers of graphite. Electron-diffraction photographs of the pyrographite reflection and graphite films ~10 microns thick grown from solution are presented. A picture of a column of graphite grown on a substrate of spectrally pure graphite heated to 1,250°C is also presented. It is pointed out that the graphite obtained is comparable, with regard to crystal perfection, to natural graphite from the Tayga deposit.

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Polymers and Polymerization

USSR

UDC 541.15

KABANOV, V. YA., CHALYKH, A. YE., ALIYEV, R. E., LUK'YANOVICH, V. M., and
SPITSYN, V. I., Institute of Physical Chemistry, Academy of Sciences USSR,
Moscow

"Electron Microscope Study of Charge Centers in γ-Irradiated Polymers"

Abstract: Investigation of the charge on polymers as a function of radiation
was performed. The IR spectra of the unirradiated polyethlene films show
no evidence of polarized acid groups. Samples were irradiated for about
0.5 minutes at 30 rads/sec from a Co60 source. The irradiation produced
surface patterns on the films which were then studied under the electron
microscope. Fourteen of the electron micrographs are reproduced in the
article. Surface patterns were not obtained on the surfaces when the
plastics were treated in the form of metal organosols. The charged centers
retain their charge when the films are submerged in a medium with a high
dielectric constant, such as water. Thus the charged centers are fixed and
the topography of particular distributions which is significant in studying
the effects of radiation is preserved.
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Water and Water Treatment

USSR

UDC 543.3:537.533.35+537.533.73

DERYAGIN, B. V., YEVKO, E. I., KISIN, V. I., LUK'YANOVICH, V. M., RABINOVICH, YA. I., CHURAYEV, N. V., and BARONOVA, R. V., Institute of Physical Chemistry, Academy of Sciences USSR; and Institute of Crystallography imeni A. V. Shubnikov, Academy of Science USSR

"Electron Diffraction Study of Modified Water"

Abstract: Modified water (m.w.) was prepared by three processes on a quartz film in order to study the "anomalous component" (a.c.), e.g. that part of the m.w. which is nonvolatile at room temperature. The bulk of the sample is amorphous. The polytypic character of the different crystalline modifications of the a.c., seen earlier in electron micrographs and ascribed to impurities of Na^+ and K^+, was evident in the electron diffraction patterns; in the latter case, however, it could not be correlated with Na^+ or K^+. It was thus assumed that the crystalline part was composed of different contaminants. The diffraction pattern, autoradiographs of tritiated samples, and electron micrographs are included.

1/1   - END -

CSO: 1841-W

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USSR

UDC 621.378.3

BOBROVNIKOV, Yu. A., VERNIGOR, Ye. M., ZVEREV, G. M., LUK'YANETS, Ye. A.,
MARTYNOV, A. D., and KHROLOVA, O. P.

"Effective Conversion of the Second Harmonic of a Ruby Laser into Induced
Radiation in the 400-470 Millimicron Range in Stilbenyloxazole Solutions"

Abstract: Results are presented for an experiment conducted to study the laser-
induced radiation in alcohol solutions of stilbenyloxazoles. In the experiment
a 2.5 Mw ruby-laser beam was focused on the vessel containing the solution. The
induced radiation was recorded by means of the ISP-51 spectrograph. The wave
length of the induced radiation ranged from 400 to 470 millimicrons. The spectrum
width for alcohol is 2.5-3 times that produced in benzene. For all solutions
studied the radiation conversion factor is about 20%.

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USSR

ZAIKINA, A. G., LUK"YANTSEV, A. F.

UDC: 53.07/.08+53.001.5

"Program for Kinematic Identification of Events on the BESM-6 Computer"

Programma kinematicheskoy identifikatsii sobytiy na EVM BESM-6. Soobshch. Ob"yedin. in-ta yadern. issled. Lab. vychisl. tekhn. i avtomatiz. (cf. English above. Reports of the Joint Institute for Nuclear Research. Laboratory of Computer Technology and Automation), 11-5965, Dubna, 1971, 19 pp, ill. Mimeo. (from RZh-Fizika, No 4, Apr 72, Abstract No 4A556)

Translation: The paper describes the GRIND program for the BESM-6 computer, designed for determining the most probable hypotheses for an event (with respect to deficient mass and the chi-square test) and for finding more precise particle parameters for these hypotheses. Resumé.

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USSR

UDC 543.544.084.8

SOKOLIN, G. F., LULOVA, N. I., LIPAVSKIY, V. N., MERKULOV, V. D.

"Selection of Evaporator Temperature During Dosing of Liquid Samples in an Industrial Chromatograph"

Avtomatiz. i Kontrol'noizmerit. Pribory. Nauch.-Tekhn. Sb. [Automation and Testing and Measurement Devices. Scientific-Technical Collection], 1972, No 12, pp 22-24 (Translated from Referativnyy Zhurnal Metrologiya i Izmeritel'naya Tekhnika, No 12, 1972, Abstract No 12.32.1025, by V. S. K.).

Translation: The most commonly used liquid sample dosing devices in industrial chromatographs are those in which the specimen is evaporated in a stream of carrier gas fed into the column, and the beginning of evaporation coincides with the beginning of analysis. Results are presented from experimental studies of the influence of evaporator temperature on the effectiveness of separation and the height of peaks of difficult-to-separate mixtures with boiling points of 135 to 145° C. It is demonstrated that the selection of the optimal evaporator temperature allows the effectiveness of the column to be increased significantly; the evaporator temperature should be 1.5-2 times the mean boiling point of the components of the mixture; if the optimal evaporator temperature causes thermal destruction of the specimen, dosing

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Sokolin, G. F., Lulova, N. I., Lipavskiy, V. N., Merkulov, V. D.,
Avtomatiz. i Kontrol'noizmerit. Pribory. Nauch.-Tekhn. Sb., No 12, pp 22-24.

devices with preliminary evaporation of the specimen should be used; the
accuracy of maintenance of the optimal evaporator temperature should be 0.5
to 1° C.   2 figures, 5 biblio. refs.

TITLE--CHROMATOGRAPHIC RETENTION VALUES OF UNSATURATED HYDROCARBONS AS
   DEPENDENT ON PHYSICAL PROPERTIES AND ELECTRON STRUCTURE -U-

AUTHOR-(02)-LEONTYEVA, S.A., LULOVA, N.I.

COUNTRY OF INFO--USSR

SOURCE--NEFTEKHIMIYA 1970, 10(1), 126-34

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHROMATOGRAPHY, UNSATURATED HYDROCARBON, ELECTRON STRUCTURE,
   MOLECULAR INTERACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0577   STEP NO--UR/0204/70/010/001/0126/0134

CIRC ACCESSION NO--AP0119495
                      UNCLASSIFIED

CIRC ACCESSION NO--AP0119495   UNCLASSIFIED   PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RELATION OF THE RETENTION VALUES OF ALICYCLIC OLEFINS ON THE STERIC EFFECTS IN THEIR MOLS. WAS INVESTIGATED. THE SUGGESTION WAS MADE THAT THE CHARACTER OF THE STERIC EFFECT MIGHT BE EXPRESSED BY THE NO. OF INTRAMOL. PAIR INTERACTIONS BETWEEN NEAR BUT NOT DIRECTLY LINKED ATOMS (GEMINAL H ATOMS). AN EQUATION WAS DERIVED FOR CALCN. OF THE RETENTION INDEXES OF ISOMERIC OLEFINS FROM THEIR STRUCTURAL FORMULAS. THE POLARITIES OF UNSATD. HYDROCARBONS DEPEND ON THE SYMMETRY OF THE SUBSTITUENT DISTRIBUTIONS OF THE DOUBLE BOND AND ON THE POS. INDUCTIVE EFFECT OF THE SUBSTITUENTS. THE RELATION BETWEEN THE RETENTION VALUE, D., AND N SUBD WAS DETD. FOR ISOMETIC OLEFINS. EXAMPLES SHOW THE RELATIONS BETWEEN THE CHROMATOG. AND CHEM. BEHAVIOR OF UNSATD. COMPDS.   FACILITY: VSES. NAUCH.-ISSLED. INST. PERERAB. NEFTI, MOSCOW, USSR.

UNCLASSIFIED

1/2   013   UNCLASSIFIED   PROCESSING DATE--23OCT70
TITLE--DETERMINATION OF ISOBUTYLENE AND ETHYL ALCOHOL IMPURITIES IN ETHYL
  CHLORIDE BY A GAS LIQUID CHROMATOGRAPHIC METHOD -U-
AUTHOR-(04)-KUDRYAVTSEVA, N.A., LULOVA, N.I., MARTYNOVA, N.V., CHESNOKOVA,
  R.I.
COUNTRY OF INFO--USSR

SOURCE--KHIM. TEKHNOL. TOPL. MASEL 1970, 15(3), 58-60

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ISOBUTYLENE, ETHANOL, CHROMATOGRAPHIC ANALYSIS, CHEMCIAL
  LABORATORY APPARATUS, CHEMICAL PURITY, CHLORINATED ALIPHATIC COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0542   STEP NO--UR/0065/70/015/003/0058/0060

CIRC ACCESSION NO--AP0119461
                            UNCLASSIFIED

CIRC ACCESSION NO--AP0119461

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IMPURITIES GREATER THAN 0.005PERCENT WERE DETD. WITH THE KHL-4 APP. BY USING HE AS CARRIER GAS. ISOBUTYLENE WAS DETD. WITH A 6 M COLUMN PACKED WITH TZK MODIFIED WITH LIQ. PETROLATUM AND SODA, BY USING PROPANE, BUTANE, OR ISOBUTANE AS INTERNAL STDS. ETOH WAS DETD. WITH A 2 SECTION COLUMN, PACKED WITH PEG-400 ON SFEROKHROM-1 (I) FOR THE 2-M SECTION AND 15PERCENT TRICRESYL PHOSPHATE ON I FOR THE OTHER 3 M, WITH A C SUB6 H SUB6 SOLN. IN PHME AS INTERNAL STD.

UNCLASSIFIED

1/2   025   UNCLASSIFIED   PROCESSING DATE--13NOV70
TITLE--GAS CHROMATOGRAPHIC ANALYSIS OF A MIXTURE OF SECONDARY OCTYLPHENOLS
-U-
AUTHOR-(03)-LIPSHTEYN, A.R., LULOVA, N.I., PULYAKOVA, A.A.

COUNTRY OF INFO--USSR

SOURCE--NEFTEPERERAB. NEFTEKHIM. (MOSCOW) 1970, (3), 45-6

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--GAS CHROMATOGRAPHY, PLASTIC COATING, SILOXANE, ELASTOMER,
ALKYLPHENOL/(U)SE30 SILOXANE ELASTOMER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1102   STEP NO--UR/0318/70/000/003/0045/0046

CIRC ACCESSION NO--AP0128529
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0128529

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SECONDARY ALKYLPHENOLS WERE
ANALYZED AFTER METHYLATION TO THE CORRESPONDING ETHERS. THE RESULTING
ANISOLES WERE DETD. BY USING A SHIMADZU GAS GROMATOG. APP., WITH A
STAINLESS STEEL CAPILLARY COLUMN (50 M TIMES 0.25 MM INSIDE DIAM.)
COATED WITH POLY(METHYLSILOXANE) ELASTOMER SE-30. THE TEMP. OF THE
COLUMN WAS 130DEGREES, THE TEMP. OF THE VAPORIZER 250DEGREES, AND THE
CARRIER GAS HE. THE RELATIVE RETENTION VOLS. OF INDIVIDUAL COMPONENTS
(R EQUALS OCTYLANISOLE) WERE: O-1-R, 1.240; O-2-R, 0.905; O-3-R, 0.770;
O-4-R, 0.715; P-2-R, 1.135; P-3-R, 1.000; AND P-4-R, 0.945.

UNCLASSIFIED

USSR

UDC 519.27

LUMEL'SKIY, V. Ya.

"An Algorithm for Detecting the Moment in Time of the Change in Characteristics of a Random Process"

Moscow, Avtomatika i Telemekhanika, No 10, 1972, pp 67-73

Abstract: The moment of change discussed in this paper is the instant at which the random process between two steady states becomes uneven and intermittent. Detection of this moment is important in the design of automatic control systems. This article proposes an algorithm for solving this detection problem, in which it is assumed that the characteristics of the process before and after the moment of uneven operation are known. The algorithm uses the Neumann-Pearson criterion and is based on an idea presented by an earlier article (A. N. Shiryayev, K obnaruzheniyu razladok proizvodstvennogo protsessa, I. Teoriya veroyatnostey i yeye primeneniya -- Detecting the Disorders in a Production Process, Part 1 of "Probability Theory and Its Application" -- Vol 8, No 3, 1963). This idea, as applied to the case of arbitrary distribution, is explained in the first part of the present paper; the algorithm is described for the case of a Gaussian distribution in the second part. The results of experiments performed
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USSR

with the use of this algorithm are given. The author expresses his gratitude
to R. Sh. Lintser for his comments and for proposing the problem.

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USSR

UDC: 51:155.001.57:681.3.06

BRAVERMAN, E. M., DOROFEYUK, A. A., LUMEL'SKIY, V. Ya.

"Using Methods of Pattern-Recognizing Computer Instruction Without a Teacher in Natural-Science Studies"

Tr. mezhdunar. simpoziuma po tekhn. i biol. probl. upr., 1968, Raspo-znavaniye obrazov. Adaptivn. sistemy (Works of the International Sym-posium on Technical and Biological Problems of Control, 1968. Pattern Recognition. Adaptive Systems), Moscow, "Nauka", 1970, pp 112-116, dis-cussion on p 117 (from RZh-Kibernetika, No 9, Sep 71, Abstract No 9V627)

Translation: The paper presents the results of machine classification of experimental data obtained in various fields of science: geology, physiology, medicine, psychology, etc. In such empirical sciences, one is frequently dealing with a large number of objects for which no a priori theoretical premises exist for their classification. A typical method of study for these sciences is to break the objects down into classes with respect to their outward "likeness", and then to find a description of the classes and elucidate the principles which govern each class. As a rule, the description of each object is a set of

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USSR

BRAVERMAN, E. A. et al., *Tr. Mezhdunar. simpoziuma po tekhn. i biol. probl. upr., 1968. Raspoznavaniye obrazvo. Adaptivn. sistemy*, Moscow, "Nauka", 1970, pp 112-116, discussion on p 117

numbers. For a human being, classification of this kind of number material is a difficult "unnatural" problem. This explains the effectiveness of using machine classification in this kind of problem.
V. Mikheyev.

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GROUPING OF PARAMETERS ON BASIS OF COMMUNICATION MATRICE

Lumel'skiy, V. Ya.

Heuristic algorithm of partition is described and the results of its experimental checking are discussed. The results of the experiments with the algorithms of the extremal grouping suggested in [1] are presented.

REEL/FRAME
19750625

USSR

LUMPOV, A. D.

"Construction of Projective Planes of Order 9 over Latin Squares of the Same Order Consisting of Subsquares of Order 3 of Different Composition"

Kombinator. Analiz. [Combinatorial Analysis -- Collection of Works], No 2, Moscow, 1972, pp 93-98 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V345, by Ye. Gonin).

Translation: A plan is described for listing, with accuracy to an isomorphism, of all Latin squares of order 9 consisting of Latin subsquares of order 3, occupied with triads of elements differentiable in pairs. The squares are identified by the method of refinement of characteristics. A list of 590 representatives of types is produced; they are presented in abbreviated form. All squares are studied for the possibility of construction of projective planes of order 9 over them; in all cases, the result was negative.

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- 41 -

USSR

LUN', Ye. I., and PELEKH, B.L., L'vov

"Complex Method in the Theory of Shells of the Timoshenko Type"

Abstract: The method of Novozhilov, V.V., concerning the complex transform of equations of the theory of shells, is applied to solve equations of the theory of elastic shells of the Timoshenko type, which considers the deformation of transverse displacements. Equations of complex stresses, complex displacements, and also solving equations of slanting shells are derived within the scope of this theory. From reduced equations, with the passage to the limit $L = h^2 E/3k'(1-\gamma^2)G_z \to 0$, functions of the classical theory of shells result which first were obtained by Novozhilov, V.V. The problem of the determination of the stress-deformed condition of slanting shells is reduced to the determination of complex and real functions which satisfy given conditions. Thirty five formulas, six biblio. refs.

1/1

USSR

LUNDERSHTADT, R., MESH, F.

UDC 629.76/.78.015:533.6

"Calculation of Aerodynamic Coefficients of Satellites"

V sb. Upravleniye v kosmose. T. 2 (Control in Space. Vol 2 -- Collection of Works), Moscow, "Nauka", 1972, PP 105-120 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3B372)

Translation: Flow mechanics in rarefied gases are discussed and the different mathematical models are compared. These models are used to calculate the force and moment coefficients for satellites having a complex geometry. The results can be extended to a force and moments caused by solar pressure. 14 ref. Authors' abstract.

1/1

- 18 -

1/2   016
TITLE--USE OF A COMPUTER TO CALCULATE SECOND MOMENTS OF EXPERIMENTAL NMR SPECTRA -U-

UNCLASSIFIED   PROCESSING DATE--23OCT70

AUTHOR-(04)-FALALEYEV, O.V., FALALEYEVA, L.G., LUNDIN, A.G., GURYEVICH, A.S.

COUNTRY OF INFO--USSR

SOURCE--PRIB. TEKH. EKSP. 1970, 1, 249

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--NMR SPECTRA, COMPUTER CALCULATION, SPECTRUM ANALYSIS, MATHEMATIC MODEL, AUTOCORRELATION FUNCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/1553

STEP NO--UR/0120/70/001/000/0249/0249

CIRC ACCESSION NO--AP0106299

UNCLASSIFIED

CIRC ACCESSION NO--AP0106299

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN ORDER TO FIND THE OPTIMUM
METHODS FOR SPECTRUM PROCESSING WITH BACKGROUND NOISES THEIR MATH.
MODELS WERE USED. THE MODELS OF THE NMR SPECTRA WERE SELECTED IN THE
FORM OF A GAUSSIAN CURVE AND ALSO AS AN UNRESOLVED DOUBLET. THE NOISES
WERE MODELED AS A SERIES OF ORDINARY NOS. WITH AN AUTOCORRELATION
FUNCTION K(TAU) EQUALS SIGMA XI PRIME2 EXP (MINUS TAU-RC) WHERE SIGMA XI
IS ROOT MEAN SQUARE VALUE OF THE NOISES, RC IS CONST. OF TIME FOR THE
FILTER OF LOWER FREQUENCIES AT THE RADIOSPECTROMETER EXIC. THE 2ND
MOMENT WAS CALCD. ACCORDING TO THE ABSORPTION CURVE WHICH WAS
REGENERATED BY INTEGRATION OF THE DERIV.   FACILITY: INST. FIZ.,
KRASNOYARSK, USSR.

UNCLASSIFIED

USSR

GELL', P. P., LUNDIN V. Z.

UDC: 621.396.822.01

"Comparative Evaluation of the Effect of the Set Noise of the Amplifying Element in Some RC-Active Circuits"

V sb. Materialy Nauch.-tekhn. konf. Leningr. elektrotekhn. in-t svyazi. Vyp. 4 (Materials of the Scientific and Technical Conference of Leningrad Electrical Engineering Institute of Communications--collection of works, No 4), Leningrad, 1971, pp 19-24 (from RZh-Radiotekhnika, No 3, Mar 72, Abstract No 3A48)

Translation: An investigation is made of the noise level in RC-active circuits where the signal is taken off from the output of the amplifying element. It is shown that certain active RC filters, in particular the Sullen-Kay filter on a "unit" amplifier and the Rauch filter, are distinguished by elevated transmission of noises to the output of the amplifying element, which reduces the dynamic range of these filters. Resumé.

1/1

USSR   UDC: 621.372.01.089.32

LUNDIN, V. Z.

"Generalization of the Traxel-Heddad Theorem on the Basis of the Method of D-Partitions"

Tr. uchebn. in-tov svyazi. M-vo svyazi SSSR (Works of Academic Institutes of Communications. Ministry of Communications of the USSR), 1970, vyp. 51, pp 143-147 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A125)

Translation: This paper deals with problems of the interrelationship between sensitivity and stability in linear circuits. The method of D-partitions is taken as a basis for generalizing the Traxel-Heddad theorem as applied to analysis of circuit sensitivity with arbitrary zero reciprocal difference. On the basis of examples of comparative analysis of various RC-active circuits, the authors demonstrate the possibilities implied by the proposed generalization. Resumé.

1/1

USSR

Polymers and Polymerization

UDC 678.7...

FOMICHEVA, M. M., ..., SHERSHNEV, Ye. A., ...
All Union Scientific Research Institute of Synthetic ...
"Properties of Heat-Frost Resistant Organofluorine Rubbers and Resins Made from Them"

Moscow, Kauchuk i Rezina, No 3, 1972, pp 5-7

Abstract: Vitrification temperature of vinylidene fluoride (VF) copolymers with perfluoromethylvinyl ether (PFMVE) containing less ... 50% of the ether is stabilized at about -40°C; when PFMVE content exceeds 50%, the temperature is raised to about -30 to -20°C. ...resins ... with increasing content of PFMVE ... during the ... elastomers of the resins containing less than 65% of the ether indicate the existence of a crystalline phase in the copolymers. The vulcanizates from these copolymers are of comparable quality with those from Viton rubber, regarding their resistance to thermal aging.

1/1

UNCLASSIFIED   PROCESSING DATE--30OCT70
TITLE--VULCANIZATION OF SATURATED FLUORINE CONTAINING RUBBERS -U-

AUTHOR-(05)-LUNDSTREM, A.M., GRINBLAT, M.P., FOMICHEVA, M.M., LOPYREV,
   V.A., NETSETSKAYA, O.A.
COUNTRY OF INFO--USSR

SOURCE--USSR 263,132
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--04FEB70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--VULCANIZATION, SYNTHETIC RUBBER, FLUORINATED ORGANIC COMPOUND,
   CHEMICAL RESISTANCE, AMINE, CHEMICAL PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1461   STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0128860
                    UNCLASSIFIED

CIRC ACCESSION NO--AA0128860
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SATD. F CONTG RUBBERS ARE
   VULCANIZED BY AMINES AND CONVENTIONALLY USED INGREDIENTS. TO IMPROVE
   THE CHEM. RESISTANCE OF THE VULCANIZATES, COMPDS. OF THE FORMULA I,
   WHERE N IS 0-8, OR THEIR COMBINATIONS IN CONCNS. OF 1-10PERCENT BY WT.
   OF THE POLYMER ARE USED AS AMINES.

UNCLASSIFIED

Abstract: The author studies the synthesis of roller-ring mechanisms with the aim
of producing a mechanism which would ensure the axial force P_{ax} while executing
the given motion rule $z = z(\varphi)$ and have minimal dimensions under these conditions.
A common solution to these problems is proposed according to the scheme: roller
with three rings (ball bearings). The solution of these problems consists of the
correct selection of a complex of design parameters. The results show that the
dimensions of the mechanisms are determined by the roller dimensions. This article
was presented for publication by Professor I.I. Artobolevskiy of the Moscow Aviation
Institute.

1/1

USSR

UDC 541.127:546.226'215:546.185'215

LUNENOK-BURMAKINA, V. A., and ALEYEVA, G. P., Institute of Physical Chemistry Acad. Sc. USSR, Imeni L. V. Pisarzhevskiy, Kiev

"Investigation of the Mechanism of Decomposition of Peroxymonosulfate and Peroxymonophosphate in Aqueous Alkali Solution"

Abstract: The decomposition mechanism of peroxymonocompounds in alkaline media was studied. The decomposition of peroxymonosulfate is first order with respect to the base and to peroxymonosulfate. The rate constants were determined:

$$k = 6.9 \cdot 10^8 \exp(-17300/RT) \text{ l} \cdot \text{mole}^{-1} \text{sec}^{-1}, \text{ and } \Delta S^{''} = -18.$$

It was established (O^{18}) that during the decomposition of potassium peroxymonosulfate and peroxy-monophosphate, oxygen is liberated both from the peroxide and from the water with statistical distribution of isotopic modalities. The data obtained are explained by a transfer of one electron from the hydroxyl ion to the peroxy anion and dis-proportionation of the hydroxyl radical formed. Assumed participation of the radicals is supported by the observed influence of isopropanol on the formation of oxygen.

1/1

USSR

UDC 621.316.722.9

KAZANTSEV, A. D., LUNEV, A. V., and FETISOV, V. I.

"Pulse Supply Source"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 1, 1970, p 52, Author Certificate No 258397 Class 21a[4].

Abstract: An author certificate has been issued for a pulse supply source, which contains an amplifier, a relaxation master oscillator, and a protection circuit. In order to increase the stability of the output voltage and to decrease its own intake power, a circuit is provided between the intake terminals, which contains a resistor and a capacitor connected in series. A dinistor is connected between them by its cathode, while its anode is connected to the base of the amplifier input transistor. In addition, the output transistor collector of the amplifier is loaded through the diode on the thyristor control electrode. A load is connected between thyristor anodes and the bus bar.

1/1

Acc. Nr.: _AA 0040447_

Ref. Code: _UR 0482_

JPRS 52248

UDC 621.316.722.9

USSR

KAZANTSEV, A. D., LUNEV, A. V., and FETISOV, V. I.

"Pulse Supply Source"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye
znaki, No 1, 1970, p 52, Author Certificate No 258397 Class 21a^4.

Abstract: An author certificate has been issued for a pulse supply
source, which contains an amplifier, a relaxation master oscillator,
and a protection circuit. In order to increase the stability of the
output voltage and to decrease its own intake power, a circuit is
provided between the intake terminals, which contains a resistor and
a capacitor connected in series. A dinistor is connected between
them by its cathode, while its anode is connected to the base of the
amplifier input transistor. In addition, the output transistor
collector of the amplifier is loaded through the diode on the thyris-
tor control electrode. A load is connected between thyristor anodes
and the bus bar.

Reel/Frame
19741939

LUNEV, ALEKSANDR-YEFREHOVICH

ACAD OF SCI.

COORDINATION IN GOVERNMENT ADMINISTRATION

[Article by Professor A. Ye. Lunev, doctor of juridical sciences, deputy director Institute of Government and Law of the USSR Academy of Sciences; Moscow, Sovetskoye Gosudarstvo i Pravo, Russian, No 11, 1971, pp 64-78]

Coordination in socialist government management means the coordination and establishment of feasible relations in the actions of various agencies, their structural subunits and employees in order to attain certain goals with the least expenditure of energy and resources. Under a planned socialist system of government, coordination makes possible the purposeful unification of the efforts of large and small collectives for the solution of common tasks of a political, economic, socio-cultural, scientific-technical, and military nature.

At the dawn of the building of the Soviet state, V. I. Lenin called the attention of government administrative workers to the importance of coordination and to the negative consequences that result when coordination is lacking. In a draft mandate from the Council of Labor and Defense to local workers institutions, he wrote of the importance of coordinated actions by various agencies implementing economic policy in various localities (published, exact). V. I. Lenin viewed the lack of coordination in the activity of various agencies as one of the factors impeding technical coordination — "departmental" division ... is harmful unless there is continued work on coordination ... is harmful unless there is continued work on coordination, on the elimination of friction, red tape, departmental narrowness ..." These Leninist ideas have formed the basis of many legal acts including the USSR Constitution and the constitutions of the union republics, in keeping with constitutional precepts, governments.

JPRS 55384
8 March 1972
NO. 346

LUNEV   D.K.   Ref. Code: UR 0246

Acc. Nr: AP0047163

MATHEMATICAL PROGNOSIS OF OUTCOMES IN HEMORRHAGIC
    STROKES WITH THE PURPOSE OF DETERMINING
        INDICATIONS TO SURGICAL TREATMENT

    Gelfand, I. M.; Guberman, S. A.; Izvekova, M. L.;
    Kandel', E. I.; Lebedeva, N. V.; Lunev, D. K.;
    Nikolayeva, I. F.; Chebotareva, N. M.

The purpose of the convened study was to elaborate methods of mathematical prognosis in hemorrhagic strokes to define the indications to surgical treatment. The authors analyzed 124 case histories (52 case histories of living patients and 72 case histories of deceased) with hemorrhages into the brain hemisphere, following hypertensive disease and atherosclerosis. In such cases 56 items were considered which were the most significant for prognosing hemorrhagic strokes. Among them were different clinical symptoms and their development during 12 hours after admission to hospitals. An analysis of these items permitted to establish a correct prognosis in relation to survival during the first 5 days with exactness to 95%. The next stage of the study presumes an elaboration of methods for prognosi 5 of hemorrhagic strokes in surgical treatment. This may be of aid in deciding the expediency of operations in each separate case.

REEL/FRAME
19790657

UNCLASSIFIED   PROCESSING DATE--13NOV70
TITLE--DETERMINATION OF THE OPTIMUM CORE DRYING TIME -U-

AUTHOR--LUNEV, M.D.

COUNTRY OF INFO--USSR

SOURCE--LITEINOE PROIZV., MAR. 1970, (3), 35-36

DATE PUBLISHED----MAR70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--THERMAL EFFECT, DRYING OVEN, PHYSICAL CHEMISTRY PROPERTY,
METAL CASTING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/1925   STEP NO--UR/0128/70/000/003/0035/0036

CIRC ACCESSION NO--AP0132187
          UNCLASSIFIED

CIRC ACCESSION NO--AP0132187
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DRYING STUDIES ON STANDARD CORE
  SAMPLES SHOWED THAT CORE STRENGTH CAN BE INCREASED BY AVOIDING BURNING
  AND OVERDRYING. THUS, THE OPTIMUM DRYING TIME IS 10-2 MIN AT A TEMP. OF
  135-260 DEGREESC, OR 30-18 MIN AT 90-130 DEGREESC CORRESPONDING TO A
  TEMP. AT THE CENTRE OF THE SAMPLE OF 110-110 DEGREESC AND MUCH GREATER
  THAN 70 DEGREESC, RESP.

UNCLASSIFIED

UR 0482

AA0043309

Soviet Inventions Illustrated, Section II Electrical, Derwent,

2/70

223406 VACUUM GAUGE of the ring balance type can
measure a vacuum from 0 to 10 mm Hg. It is
fitted with a spiral tube with a closed end, contain-
ing mercury. The centre of gravity of the mobile
system lies at a vertical through the horizontal ring
balance spindle and through the geometrical axis of
the spiral. A vacuum of less than 10 mm Hg will shift
the mercury to the left and turn the pointer anti-
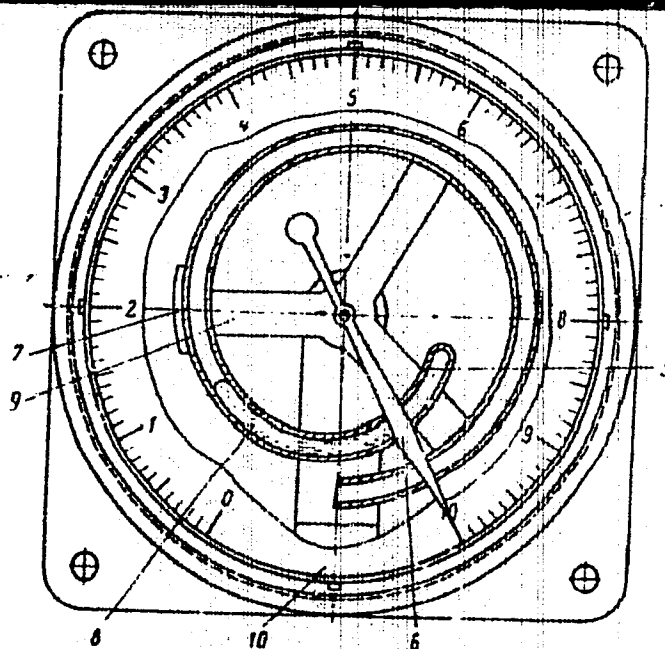clockwise.
8.12.66 as 118227/26-10.N.G.LUNEV (2.10.69) Bul 14/
2.8.68. Class 42k. Int.Cl.G 01 l.

1/2

1976 1513

2 1

AA0043309

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197615 14

USSR   UDC 533.6.011

LUNEV, V. V., Moscow

"Nonviscous Flow in the Area of the Critical Point of a Blunt Body with Variable Density Along the Axis"

Mekhanika Zhidkosti i Gaza, No 6, 1971, pp 56-61.

ABSTRACT: It is demonstrated within the framework of the hypersonic theory of a thin shock layer for the area of the critical point that the thickness of the shock layer, velocity profile and longitudinal pressure gradient are independent of the density profiles along the axis, the variability of which results from variations from equilibrium, radiation, etc., and remain the same as for the adiabatic flow of an ideal or equilibrium-dissociated gas with near-constant density.

1/1

USSR

GUBANOVA, O. I., LUNEV, V. V., PLASTININA, L. N., Moscow

"On Central Separation Zone in a Supersonic Underexpanded
Jet Impinging Against a Wall"

Abstract: An experimental investigation of the interaction
between the supersonic underexpanded jet and a wall normal
to its axis has been conducted.

A central separation zone occurs when the distance
from the nozzle to the wall is six times the nozzle exit
radius. The pressure in this zone is lower than in the
surrounding one.

1/2

USSR

GUBANOVA, O.I., etal, Izvestiya Akademii Nauk SSR, Mekhanika Zhidkosti i Gaza, No 2, March-April 1971, pp 135-138

   The experiments were conducted with the Mach number of 2.0 and the nozzle exit pressure equal to 2.85 times the ambient pressure.

   Photographs showing the flow patterns and the shock waves are presented, as well as the curves of the pressure distribution along the plate.

USSR

LUNEVA, Z. S., All-Union Scientific Research Institute of Tools

"Properties of Hardened High-Speed Steel After Short-Term Heating with Tempering"

Abstract: Short-term heating of hardened high-speed steel with tempering at 560-600°C reduces the hardness from HRC 63-64 to HRC 58-59. This hardness "gap" is of the same nature as that observed after tempering at 250-500°C for one hour. As the duration of tempering is increased, the hardness of both R6M3 and R18 steels increases, attaining a stable and maximal magnitude of HRC 64-64.5 at 580 and 600°C, respectively with holding for 10 and 20 minutes. To avoid a reduction in hardness, it is essential that the short-term tempering of hardened high-speed steel be performed in two stages with holding of 10 and 20 minutes. R6M3 must be tempered at 580°C and R18 steel at 600°C. The above tempering system is designed for tools to be machined on automatic lines under conditions of individual loading, a liquid heating medium, and reliable temperature control. Curves in the original article show changes in the properties of hardened R18 steel after tempering at 560, 580, and 600°C in single-, double-, and three-stage tempering, and changes in the hardness of R6M3 and R18 steels as a function of temperature and tempering time.
1/1

Biophysics

BERESTOVSKIY, G. N., LUNEVSKIY, V. Z., MUSIYENKO, V. S., POPOVA, S. V.,
RAZHIN, V.D., Laboratory of Biophysics of Living Structures, Institute of
Biological Physics, Academy of Sciences USSR, Pushchino-na-Oke

"Study of the Cumulative Structural Changes in a Nerve Fiber During Rhythmic
Stimulation Using Optical Techniques"

Abstract: Optical techniques (birefringence, ultraviolet absorption, light
dispersion) were used to study the structural and physical-chemical changes
in nerve fiber accumulated during rhythmic activation of it. The studies were
made on the giant axons of the squid and the ventral nerve cord of crayfish.
The quantitative analysis of the experimental results led to the following con-
clusions: in practice there are no cumulative changes in the degree of orienta-
tion of the macromolecular structures in the axoplasm, including the gel-sol
transition even as a result of transmission of several thousands of pulses
through the nerve; although conformational changes take place in the proteins
of the entire axoplasm 20 milliseconds after generation of a single action
potential, they are expressed two orders more weakly than in the case of
denaturation; the results of the light dispersion experiments agree with the
1/2

USSR

BERESTOVSKIY, G. N., et al., Tsitologiya, Vol 14, No 12, 1972, pp 1,461-1,467

published data. In addition to the primary purpose of studying the role of
the axoplasm during the excitation process, the described experiments permit
the determination of possible artifacts when studying the structural changes in
the membrane from a single action potential by the given optical methods.

2/2

1/2   023

TITLE--OPTICAL STUDIES OF THE CHANGE IN THE STRUCTURE OF NERVE MEMBRANE DURING NERVE IMPULSE TRANSMISSION -U-

AUTHOR-(04)-BERESTOVSKIY, G.N., LIBERMAN, YE.A., LUNEVSKIY, V.Z., FRANK, G.M.

COUNTRY OF INFO--USSR

SOURCE--BIOFIZIKA 1970, 15(1), 62-8

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CRAYFISH, NEURON, CELL MEMBRANE, PHOSPHOLIPID, LIGHT REFRACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/0625   STEP NO--UR/0217/70/015/001/0062/0068

CIRC ACCESSION NO--AP0117851

CIRC ACCESSION NO--AP0117851

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN ISOLATED ABDOMINAL AND FOOT NERVE FIBERS AND GIANT AXONS OF ASTACUS ASTACUS (CRAYFISH), THE ACTION POTENTIAL PEAK INCREASED BIREFRINGENCE OF THE NERVE FIBER MEMBRANE. IN EXPTS. IN WHICH A BOVINE BRAIN BIMOL. PHOSPHOLIPID MEMBRANE WAS USED ALONE, THE BIREFRINGENCE CHANGES CAN BE EXPLAINED AS THE ACTION OF AN ELEC. FIELD ON IONS DISSOLVED IN MEMBRANE LIPIDS BUT NOT AS THE ACTION OF ELEC. CURRENT ON THE LIPID OR PROTEIN PART OF THE MEMBRANE. IT IS SUPPOSED THAT THE MECHANISM OF BIREFRINGENCE CHANGES IS SIMILAR TO THE MECHANISM OF ION TRANSPORT ACROSS THESE MEMBRANES.   FACILITY: INST. BIOL. PHYS., PUSCHINO, USSR.

UNCLASSIFIED

Biophysics

USSR

BERESTOVSKIY, G. N., LIBERMAN, Ye. A., LINEVSKIY, V. Z., and FRANK, G. M.,
Institute of Biological Physics, Academy of Sciences USSR

"Optical Studies on Changes in the Structure of the Nerve Membrane During the
Conduction of Nerve Impulses"

Abstract: During action potential there is a change in the birefringence of
the nerve fiber membrane due to change in the electric field in the membrane.
At the peak of action potential, the birefringence of the membrane increases
by $1.5 \cdot 10^{-4}$ and the value of the optical effect recorded is inversely propor-
tional to the diameter of the axon. Changes in birefringence of phospholipid
membranes are due to changes in their structure following displacement of the
fat-soluble ions by the electric field and not to the direct action of the
field on the lipid or protein part of the membrane. The mechanism of change
in permeability of a nerve membrane may be similar to the mechanism of ion
migration across these phospholipid membranes.

1/1

TITLE--DETERMINATION OF THE CONTENT OF SOME AUXILIARY SUBSTANCES IN
   SUSPENSION POLY VINYL CHLORIDE -U-
AUTHOR-(05)-PEREPLETCHIKOVA, YE.M., KALININ, A.I., KOHLEVA, V.N.,
   LUNICHEVA, E.V., ZILBERMAN, YE.N.
COUNTRY OF INFO--USSR

SOURCE--PLAST. MASSY 1970, (3), 48-51

DATE PUBLISHED------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--POLYVINYL CHLORIDE, CHEMICAL SUSPENSION, CHROMATOGRAPHY,
   POLAROGRAPHIC ANALYSIS, COLLOID, LEAD, CADMIUM, BARIUM, CALCIUM, ION,
   CHEMICAL ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/1802   STEP NO--UR/0191/70/000/003/0048/0051

CIRC ACCESSION NO--AP0123599
                   UNCLASSIFIED

CIRC ACCESSION NO--AP0123599
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE QUANT. EXTN. OF RESIDUAL
  INITIATORS (E.G., BZ SUB2 O SUB2, AZOBISISOBUTYRONITRILE, LAUROYL
  PEROXIDE, ETC.) FROM SUSPENSION POLY (VINYL CHLORIDE) (I) AND THE DETN.
  OF INITIATORS BY GAS,LIQ. CHROMATOG. AND POLAROGRAPHY WERE DESCRIBED.
  QUAL. CHEM. REACTIONS WERE USED TO IDENTIFY PROTECTIVE COLLOIDS IN AQ.
  EXTS. OF I. PB PRIME2 POSITIVE, CD PRIME2 POSITIVE, BA PRIME2 POSITIVE,
  AND CA PRIME2 POSITIVE WERE DETD. BY EMISSION SPECTROSCOPY,
  POLAROGRAPHY, AND QUAL. ANAL., WHEREAS THE CONTENT OF
  CIS,9,OCTADECENE,1,OL WAS DETD. BY GAS LIQ. CHROMATOG.

UNCLASSIFIED

USSR   UDC 542.61:546.799.5

LUNICHKINA, K. P., and RENARD, E. V.

"Extraction of Americium (III), Lanthanum (III), and Neodymium (III) from
Lactic Acid Solutions with Di-(2-ethylhexyl)phosphoric Acid in the Presence
of Large Amounts of Rare-Earth Elements"

Leningrad, Radiokhimiya, Vol 15, No 1, 1973, pp 30-35

Abstract: The effects of the pH of the aqueous phase, the concentration of the
extracting agent di-(2-ethylhexyl)phosphoric acid (I) in a technical mixture
of alkylbenzenes (PAB), and the concentration of La in the aqueous phase on the
extraction of indicator quantities of ^{241}Am from lactate-nitrate solutions were
studied. It was was established that coextraction of lactate ions L^- with
Am(III) into I took place. The mechanism of the extraction of Am(III) depended
on the presence of macroquantities of La that was also extracted. In the
absence of La, the extraction of Am(III) proceeded by the mechanism $AmL_n^{3-n} +$

$3(HR)_2 \leftrightarrows AmL_n(HR_2)_{3-n} \cdot n(HR)_2 + (3-n)H^+$, where R is a di-(2-ethylhexyl)phosphate

anion and n = 1-2, while in the presence of large amounts of La in the system
it took place according to the equation $AmL_n^{3-n} + (3-n)HR \leftrightarrows AmL_nR_{3-n} + (3-n)H^+$

(n=1-2). The capacity of I for La and Nd was determined. It was found that I
1/2

USSR

LUNICHKINA, K. P., and RENARD, E. V., Radiokhimiya, Vol 15, No 1, 1973, pp 30-35

extracted macroquantities of La or Nd (Ln = La, Nd) from lactate solutions in the form of the complex LnR_2L.

2/2

21

UDC 621.316.825.4:678.762

USSR

PAUSHKIN, YA. M., PANCHENKOV, G. M., CHERNYKH, V. G., LUNIN, A. F., KAUSHANSKIY, D. A., DMITRIYEV, V. A., and MARKOVICH, V. B., Moscow Institute of the Petrochemical and Gas Industry imeni I. M. Gubkin, Moscow, Ministry of Higher Education USSR

"Effect During the Process of Irradiation of Ionizing Radiation on Polymers With Conjugated Bonds"

Abstract: The effects of gamma-rays from ^{60}Co at a dosage rate of 1.2-1.3 Mrad/hr on the electrophysical properties of the organic semiconductors polyacetonitrile (I), paracyanogen (II), polyphenyl-cyanamide (III), polydiacetyl (IV), polybutylcyanamide (V), and polybutylcyanate (VI), specifically on their electrical resistance, were studied during the process of irradiation. For I, II, IV, and VI with a low ohmic resistance that were prepared at $450-500^\circ$, irradiation at doses $\leq 5 \times 10^9$ rad did not result in any changes of resistance. Irradiation of V, which also had a low ohmic resistance, produced a slow rise in resistance in the dose range of 0-110

1/2

USSR

PAUSHKIN, YA. M., et al, Doklady Akademii Nauk SSSR, Vol 192, No 4, 1970, pp 835-837

Mrad and an abrupt rise at 110-140 Mrad. In the case of VI with a high ohmic resistance, which was prepared at $350°$, ionizing radiation in the dose range from 0 to 170-200 Mrad produced further polymerization and cross-linking, which were reflected in a decrease of the resistance, while doses > 200 Mrad decomposed the polymer. The results showed that irradiation at doses up to 5×10^9 rad of I, II, IV, and VI with a low ohmic resistance did not change the physico-chemical and electrophysical properties of these polymers - i.e., they are suitable for use in radioelectronic devices operating under conditions of exposure to ionizing radiation.

2/2

Polymers

USSR

UDC 547.565.2

PAUSHKIN, YA. M., LUNIN, A. F., and KOMISSAROV, V. I., Moscow Institute of Petrochemical and Gas Industry Imeni I. M. Gubkin

"Synthesis of Thermally Stable Oxidation-Reduction Polymers"

Moscow, Doklady Akademii Nauk SSSR, Vol 195, No 5, Dec 70, pp 1125-1127

Abstract: In light of the increasing interest in redox polymers, a synthetic route was developed based on heterocondensation of disodium acetylenide (DNaAc) with 2,5-dibromoquinone (DBQ) and 1,4-dimethoxy-2,5-dibromobenzene followed by demethoxylation with HI. It was determined that the redox capacity of the polymer drops with increased reaction temperature, which may be due to partial crosslinking and dehydration. The polymer obtained maintained its redox capacity for 10 hrs even when heated in air to 300°C. This polymer shows semiconductive properties. The synthesis took place in two stages: first stage was carried out in a flask in hexadecane medium, with reaction temperature of 250°. The process lasted 10 hrs in argon atmosphere. The ratio of DNaAc to DBQ was 2:1. Second stage was carried out in solid phase in temperature range 300-450° yielding the polymer, a black powder insoluble in water or organic solvents.
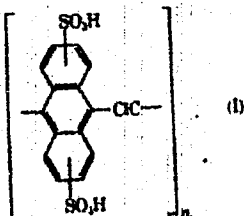
1/1

— 101323z Synthesis and properties of new aromatic poly-
mers. Paushkin, Ya. M.; Komissarov, V. I.; Lunin, A. F.; Alek-
sandrova, V. A.; Oganesov, S. S.; Meshcheryakov, S. V.; Shu-
mov, V. N. (Inst. Neftekhim. Gazov. Prom. im. Gubkina, Mos-
cow, USSR). Vysokomol. Soedin., Ser. B 1970, 12(1), 53-6
(Russ). The heteropolycondensation of Na_2C_2 with o-, m-, and
p-$C_6H_4Cl_2$ and $C_6H_4Br_2$, 1,4-$C_{10}H_6Br_2$ and 1,5-$C_{10}H_6Br_2$, and
9,10-dibromoanthracene in $C_{14}H_{31}$ was studied under Ar at
200-87°. The most reactive monomers were the o-dibromo derivs.
The polymers were brown to black powders stable at up to 300-400°,
having an elec. cond. in the range of 10^{-7}-10^{-12} (ohm cm)$^{-1}$. The
polymers were readily nitrated, sulfonated, and aminated; e.g.,

$$(I)$$

sulfonation with fuming H_2SO_4 gave heat resistant (to 300°) cat-
ion exchange resins I of high exchange capacity.   CKJR

REEL/FRAME

19821144

LUNIN AF   UNCLASSIFIED   PROCESSING DATE--03JUL7C

TITLE--PREPARATION OF ORGANOSILICON POLYMERS WITH TRIPLE BONDS IN THE
CHAIN -U-

AUTHOR--SHOROV,.V.N., FALSHKIN, YE.M., LUNIN, A.F.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. B 1970, 12(2), 101-2

DATE PUBLISHED-------7C

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANOSILICON COMPOUND, POLYMER, POLYCONDENSATION,
ORGANOSODIUM COMPOUND, IR SPECTRUM, CHEMICAL BONDING, UNSATURATED
HYDROCARBON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1980/0601   STEP NO--UR/0450/70/012/002/0101/0102

CIRC ACCESSION NO--AP0044834

Acc. Nr.
AP0048834

90899p Preparation of organosilicon polymers with triple bonds in the chain. Shumov, V. N.; Paushkin, Ya. M.; Lunin, A. F. (USSR). *Vysokomol. Soedin.*, Ser. B 1970, 12(2), 101-2 (Russ). The title polymers (I) were prepd. by polycondensation of Me_2SiCl_2 with $NaC:CNa$ in hexadecane for 10 hr at 200-90° under Ar. The max. yield (52%) of I was obtained at 290°. I were brown powders, partially sol. in PhMe and $HCONMe_2$, and infusible ≤350°. I obtained at 290° contained C 58.25, H 8.36, and Si 24.48%. The triple bond was not obsd. in the ir spectrum due to symmetry and pseudosymmetry. The sp. resistance of I obtained at 200°, and 250° and 290° was 3×10^{10} and 1.6×10^{10} ohm cm, resp.

DBJR

REEL/FRAME
19800601

TITLE--ELECTROPHYSICAL PROPERTIES OF THERMISTORS BASED ON POLYMERS WITH
   CONJUGATED DOUBLE BONDS -U-

AUTHOR-(04)-OGANESOV, S.S., MARKOVICH, V.B., PAUSHKIN, YA.H., LUNIN, A.F.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(2), 330-3 (TECH PHYS)

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, MATERIALS, PHYSICS

TOPIC TAGS--CONJUGATE BOND SYSTEM, CONJUGATED POLYMER, ORGANIC
   SEMICONDUCTOR, ELECTRIC PROPERTY, NITRILE, CYANAMIDE, THERMISTOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0715   STEP NO--UR/0020/70/191/002/0330/0333

CIRC ACCESSION NO--AT0124385
                          UNCLASSIFIED